

Claims

1. An artificial throat for simulating and analyzing aroma release comprising:

- a tube (1) having an inlet (2) and an outlet (3) and having an upper portion (4), a middle portion (5) and a lower portion (6);
- a sample supply system (12) debouching at the upper portion (4) of the tube (1);
- an inlet closure (9) for closing and opening the inlet (2);
- an outlet closure (10) for closing and opening the outlet (3);
- 10 - a gas ventilation system (13) debouching at the lower portion (6) of the tube (1) for providing a gas flow, such as an air flow, through the tube.

2. An artificial throat for simulating and analyzing aroma release according to claim 1, **characterised in that**, the sample supply system (12) debouches above the inlet closure (9).

15 3. An artificial throat for simulating and analyzing aroma release according to any of the preceding claims, **characterised in that**, the sample supply system (12) comprises multiple supply channels.

20 4. An artificial throat for simulating and analyzing aroma release according to any of the preceding claims, **characterised in that**, the gas ventilation systems (12) debouches above the outlet closure (10).

25 5. An artificial throat for simulating and analyzing aroma release according to any of the preceding claims, **characterised in that**, the gas ventilation systems (13) is adapted for providing a gas flow in the direction from the outlet (3) of the tube (1) to the inlet (2) of the tube and in the opposite direction from the inlet (2) of the tube (1) to the outlet (3) of the tube.

30 6. An artificial throat for simulating and analyzing aroma release according to any of the preceding claims, **characterised in that**, the gas ventilation system (13) is adapted to change the composition of the gas.

7. An artificial throat for simulating and analyzing aroma release according to claim 6, **characterised in that**, the gas ventilation system (13) comprises:

- means to decrease the oxygen content;
- 5 – means to increase the carbon dioxide content.

8. An artificial throat for simulating and analyzing aroma release according to claim 6 or 7, **characterised in that**, the gas ventilation system (13) comprises means to increase and/or decrease the water content.

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9. An artificial throat for simulating and analyzing aroma release according to any of the claims 6-8, **characterised in that**;

- the means to decrease the oxygen content comprise at least one agent that binds oxygen;
- 15 – the means to increase the carbon dioxide content comprise a container, the container comprising carbon dioxide and being connected to the gas ventilation system by a piping.

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10. An artificial throat for simulating and analyzing aroma release according to any of the preceding claims, **characterised in that**, the interior of the tube (1) comprises retention means to improve the retention of a sample at the inner-surface of the tube.

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11. An artificial throat for simulating and analyzing aroma release according to any of the preceding claims, **characterised in that**, the tube (1) is in an upright position.

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12. An artificial throat for simulating and analyzing aroma release according to any of the preceding claims, **characterised in that**, temperature control means (11) are provided.

13. An artificial throat for simulating and analyzing aroma release according to claim 12, **characterised in that**, the temperature control means (11) are adapted to influence the temperature of the tube wall.

14. An artificial throat for simulating and analyzing aroma release according to any of the claims 12-13, **characterised in that**, the temperature control means (11) are adapted to influence the temperature of the gas flow through the interior of the tube.

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15. An artificial throat for simulating and analyzing aroma release according to any of the claims 12-14, **characterised in that**, the temperature control means (11) comprises an outer tube, which outer tube is connected to a piping system, at which the outer tube and/or the piping system comprises heating means.

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16. An artificial throat for simulating and analyzing aroma release according to any of the preceding claims, **characterised in that**, a control system is provided, which control system is adapted to open the inlet closure (9) for passing a sample after opening the outlet closure (10).

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17. An artificial throat for simulating and analyzing aroma release according to claim 16, **characterised in that**, the control system is adapted to open the inlet closure (9) after a predetermined amount of sample has been introduced into the tube above the inlet closure.

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18. An artificial throat for simulating and analyzing aroma release according to any of the claims 16-17, **characterised in that**, the control system is adapted to close the outlet closure (10) before providing gas.

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19. An artificial throat for simulating and analyzing aroma release according to any of the claims 16-18, **characterised in that**, the control system is adapted to open the inlet closure (9) before providing gas.

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20. An artificial throat for simulating and analyzing aroma release according to any of the claims 16-19, **characterised in that**, the control system is adapted for controlling the gas ventilation system (13) to exhaust a single discharge of gas.

21. An artificial throat for simulating and analyzing aroma release according to any of the claims 16-20, **characterised in that**, the control system is adapted for controlling the gas ventilation system (13) to exhaust repeated discharges of gas for simulating natural breathing.

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22. An assembly for simulating and analyzing aroma release comprising an artificial throat according to any of the preceding claims, further comprising an analyzing apparatus, at which the analyzing apparatus is connected to the inlet of the artificial throat.

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23. An assembly for simulating and analyzing aroma release according to claim 22, **characterised in that**, the analyzing apparatus is a mass-spectrometer.

24. A method for simulating and analyzing aroma release which method comprises:

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- A. flowing a sample through a tube in one direction
- B. transporting a gas through the tube in the opposite direction of the flow of the sample
- C. analyzing at least part of the gas after flowing through the tube.

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25. A method for simulating and analyzing in vivo aroma release according to claim 24 **characterised in that**, in step C a mass spectrometer is used.

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26. A method for simulating and analyzing aroma release according to claim 24 or 25, **characterised in that**, the method comprises an alternative step B, which step comprises;

- transporting a gas through the tube in the direction of the flow of the sample;
- collecting the gas after flowing through the tube;
- adapt the composition of the collected gas;
- transporting the collected and adapted gas in the opposite direction of the flow of the sample.

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27 A method for simulating and analyzing aroma release according to claim 26, **characterised in that**, the composition of the collected gas is adapted at least by;

- decreasing the oxygen content
- increasing the carbon dioxide content
- increasing the water content.